

MISCELLANEOUS NOTES

Islands in the collection of Zoological Survey of India. *ibid.* 77: 255-292.

SMITH, M. A. (1927) : Contributions to the herpetology of the Indo-Australian regions. *Proc. Zool. Soc.* pp. 199-225.

————— (1935) : Fauna of British India (Sauria). Vol. II. London, pp. xii+440.

————— (1940) : Contribution to the Herpetology of the Andaman and Nicobars Islands. *Proc.*

Linn. Soc. Lond., Part II.

————— (1943) : Fauna of British India. (Serpentes). Vol. III. London, pp. vii-583.

TIWARI, K. K. (1961) : The eggs and flight of Gecko *Ptychozoon kuhli* Stejneger from Car Nicobar. *J. Bombay nat. Hist. Soc.* 58(2) : 523-526.

————— & BISWAS, S. (1973) : Two new reptiles from the Great Nicobar Island. *J. Zool. Soc. India* 25(1&2) : 57-63.

17. NUTRITIONAL DISORDERS OF YOUNG CAPTIVE CROCODILES

(With a plate)

The female of a pair of mugger crocodile, *Crocodylus palustris* kept for exhibition at Indira Gandhi Zoological Park, Visakhapatnam has been laying eggs successfully since 1977. The eggs laid were allowed to hatch *in situ* in the enclosure every year, but the hatchlings were removed from the parents for separate rearing in specially designed rearing pools.

During the rearing of the young, it has been noticed that most of the hatchlings of the age group 0-2 years which are fed with lean beef meat alone are being affected with the cessation of the growth succeeded by hunchback (Plate I; 1) and death follows if untreated. This has been proved as a nutritional disorder and the symptoms are as follows.

(1) Appearance of hunchback between pectoral and pelvic girdle progressing from the eighth lumbar vertebra towards pelvic region.

(2) Poor appetite and sluggish movements.

(3) Increase of hunchback.

(4) Death due to hypoglycemia, specially on cold nights.

(5) In older animals (1-2) death due to the fracture in vertebral column.

These symptoms are found to be due to the resorption of calcium from the bones into the plasma or due to severe imbalance of calcium

to phosphorus ratio, or because of low vitamin D content in the diet, as the diet of meat has a very low percentage of calcium. The abnormalities in the vertebral column and pelvic region are clearly shown in the radiograph (Plate I; 3) of calcium deficient animal. The difference between normal crocodile and affected can clearly be seen in the radiographs (Plate I; 2 and 3). The mortality occurs within 15-20 days after the onset of the symptoms in case of 2-5 months old hatchlings. Whereas in the case of yearlings the cessation of growth is clearly noticed and subsequently death follows.

It has been established that the crocodiles in captive rearing suffer from this common nutritional disorder due to feeding with imbalanced diet. The lean beef with which the crocodiles are fed with, generally has a low calcium and vitamin D content.

In an attempt to prevent this death of hatchlings (below one year age), several combinations of diet were given to the reptiles. They are crabs, fish, liver, beef etc., and finally it has been found out that the best suited diet for hatchlings should be the combination of beef, liver and crabs on one day, alternate with beef, liver and fish on the second day but for yearlings (1-2 years age) beef, liver, fish

and crabs should be given every day. It is advisable to administer the diet in the following proportions (Tables I and II).

TABLE I
DIET FOR HATCHLINGS

Diet	Quantity	
i) Beef	250	Per
ii) Liver	50	twelve
iii) Fish/crabs	150	hatchlings

TABLE II
DIET FOR YEARLINGS

Diet	Quantity	
i) Beef	450	
ii) Liver	100	Per
iii) Fish	100	twelve
iv) Crabs	100	yearlings

The success of survival after administration of this balanced diet may be seen from Table III.

ASST. CURATOR,
INDIRA GANDHI ZOOLOGICAL PARK,
VISAKHAPATNAM 530 040.

CURATOR,
INDIRA GANDHI ZOOLOGICAL PARK,
VISAKHAPATNAM 530 040.

VETERINARY OFFICER,
INDIRA GANDHI ZOOLOGICAL PARK,
VISAKHAPATNAM 530 040.

DEPARTMENT OF ZOOLOGY,
ANDHRA UNIVERSITY,
VISAKHAPATNAM 530 003,
February 9, 1984.

TABLE III
SURVIVAL OF CROCODILES WITH AND WITHOUT
BALANCED DIET

Year	No. of hatchlings	Mortality due to nutritional disorder	No. of survivals	Survival (%)	Diet
1978	15	13	2	13.3	Not balanced
1979	16	15	1	6.2	Not balanced
1980	14	4	10	71.4	Balanced
1981	27	Nil	27	100.0	Balanced

The hunchback in case of yearlings, however, persists even after the change of diet though the disease no longer remains.

ACKNOWLEDGEMENTS

We wish to express our thanks to Sri Pushp Kumar, I.F.S. Conservator of Forests, Wild Life Management, Andhra Pradesh, Hyderabad for his encouragement and guidance.

K. TULASI RAO

B. THRINADHA RAO

Y. RAMA

B. BHARATHA LAKSHMI